# Telephone triage of acute illness by a practice nurse in general practice: outcomes of care

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#### SUMMARY.

**Background.** Telephone working is an increasingly important way of managing general practice workload, particularly out of hours. The role of telephone triage, however, in managing acute consultations during the day has not been adequately researched.

Aim. To determine the impact of telephone triage, conducted by a practice nurse, on the management of same day consultations in a general practice.

Method. A general practice of 11 300 patients in South Tyneside collected prospective telephone and surgery consultation data over three months. Patient satisfaction, for those who had received only telephone advice, was measured using a postal questionnaire. Four outcomes were measured: changes in doctor and nurse workload; repeat consultations with the same problem; prescriptions issued; and patient satisfaction with the service.

Results. In three months, 1263 consultations were recorded. Doctor workload fell by 54%, from 1522 to 664 consultations, compared with the previous three months. A total of 325 (26%) telephone requests to see the doctor were managed by the nurse on the telephone without them visiting the surgery. Also, 273 (21%) patients saw the nurse in the surgery, 565 (45%) saw the doctor in the surgery, and 99 (8%) saw the doctor and the nurse in the surgery. The response rate to the postal questionnaire was 192/271 (71%); 154 (88%) were satisfied with nurse telephone advice.

**Conclusions.** Telephone triage, by a practice nurse, of patients who wish to see the doctor on the same day, reduced doctor workload. This was a service that patients liked.

Keywords: telephone consultation; practice nurse; questionnaire survey; workload; patient satisfaction.

#### Introduction

ATIENT demand is increasing, out of hours and during the day.<sup>1,2</sup> Telephone consulting is an increasingly popular way of managing this work.<sup>3–5</sup> Much out-of-hours work is performed by deputizing services and cooperatives,<sup>6</sup> with 98% of cooperatives now offering telephone advice as well as home visiting and consultations away from the surgery.<sup>7</sup> It is usually doctors who give advice, although nurses manage at least a third of home visit requests on the telephone.<sup>8</sup>

A response to increased work during the day has been to delegate chronic and acute disease management to practice nurses.9

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A 'minor illness' nurse can successfully assess, diagnose, and treat patients with acute illness. 10-12 This previous research did not examine the effect of the nurse on doctor and nurse workload, and there was no attempt to triage these calls.

This paper describes the impact of a nurse consulting on the telephone with patients who want to see a doctor the same day.

#### Method

The practice examined is fundholding and in an urban area of Tyneside. There are 11 300 patients, six full-time doctors, four practice nurses, and administrative staff. The annual consultation rate is 3.3. Ten per cent of patients are under the age of 10 years and 20% are aged 65 years or over. At the time that the study was conducted, the waiting time for a routine appointment was more than one week.

Until the middle of 1995, the doctors would take turns to be 'on call' and hold surgeries for patients who had a problem that could not wait until the next available appointment. The on-call doctor sometimes felt stressed by having to see many 'extras'. We decided to delegate some of this work to a nurse.

The service was managed by a registered nurse who had been in practice for 15 years and who was used to managing acute illnesses and conducting telephone consultations. She had received training in consultation techniques (learned by sitting in with the doctors) and in diagnosing and treating acute and chronic illnesses. We also developed written guidelines, in association with all doctors and nurses, for the management of acute conditions such as cystitis, sore throat, and vaginal discharge.

#### Organization of the service

Patients who telephoned requesting to see a doctor on the same day were put through to the nurse, or the patient's telephone number was taken and she rang them back. The nurse would manage the patient's problem over the telephone (this might include advice to make a non-urgent appointment) or arrange for the patient to see the on-call doctor or herself in the surgery. The service was designed to be non-confrontational, and any patient who wished to see a doctor rather than the nurse was given an appointment with the doctor. The nurse and on-call doctor worked together from 08.30 to 12.30 hours every weekday. Nursing time was taken from existing nursing hours, thus reducing the number of 'routine' practice nurse appointments. The service did not operate in the afternoon, when only the doctor was available. These afternoon consultations are not included here.

Written guidelines were developed for receptionists, the nurse and doctors. As far as possible, the nurse only conducted telephone consultations when the patients' written and computer records were available. In the written records we recorded the patients' verbatim comments about the presenting problem, the nurse's advice, and arrangements for follow-up.

#### **Consultations**

All telephone and surgery consultations were entered by the doctor and nurse onto 'encounter sheets'. Details recorded included the patient's presenting problem or diagnosis, who was seen in the surgery, whether a prescription was issued, and referrals. The encounter sheets were analysed at the end of the working day to

eliminate duplicate consultations and to ensure that the forms were completed correctly.

Three months after the patient had consulted, the written and computer records were examined to determine whether the same patient had consulted on the telephone or at the surgery with the same problem in the following one and four weeks, i.e. had required a repeat consultation. The data were also checked against the patient encounter sheets, the patient's computer record, and the written records. The initial presenting diagnoses or symptoms were originally written using the descriptive terms normally used by the doctors and nurse, such as earache, headache, and sore throat. These were recoded by MG into a system diagnosis or problem. Data were analysed using EPI-INFO.<sup>13</sup> Results were analysed using crosstabulations.

We determined four outcome measures: changes in doctor and nurse workload; repeat consultations for the same problem; prescriptions issued; and patient satisfaction with the service.

Results cover the three-month period 1 August 1995 to 31 October 1995.

#### Postal questionnaire

Patients who had only received telephone advice were sent a postal questionnaire in June 1996 to assess their views of the service. The questionnaire was accompanied by a stamped, addressed envelope and a signed letter from the doctors. Two further questionnaires were sent to non-responders.

The questionnaire was developed from responses to an exit poll of 25 patients who had received telephone advice and then saw the nurse in the surgery, and after 15 telephone interviews with patients who had only had telephone advice.

#### Results

#### Consultation data

Telephone and surgery consultations. There were 1313 requests to see the doctor as acute same-day consultations. After data cleaning and excluding poor information capture, 1263 consultations form the basis of the study (Table 1). We could examine diagnoses for 1250 consultations and repeat consultation information for 1218.

Doctor workload fell by 54%, from 1522 to 664 consultations, compared with the previous three months (Table 2). Part of the fall could be attributed to the study being conducted during the summer months, as there was a fall in the total number of patients seen by the doctors and nurses. The number of other appointments provided by the nurses fell from 1793 to 1415 appointments.

The largest age group consulting were children under 9 years, of whom there were 285 (23%). Over a third (448; 36%) were under 20 years, and a half (619; 48%) were under 30 years.

**Table 1.** What happened to patients who requested to see the doctor on the same day?

Telephone advice or surgery consultations only	Number (percentage) of patients			
Telephone advice only	325 (25.7)			
Consultation with the nurse	273 (21.6)			
Consultations with the doctor	565 (44.7)			
Consultation with the nurse and doctor	r 99 (7.8)			
Consultation with the physiotherapist	1 (0.1)			
Total	1263 (100.0)			

Conditions seen by the nurse and doctor. The majority of all dermatological problems (126/169; 75%) and gynaecological problems (59/76; 75%) were managed by the nurse on the telephone or in the surgery (Table 3).

Prescriptions. A total of 647 (51%) out of 1262 consultations (excluding one physiotherapy consultation) resulted in a prescription. Seventy (21%) of the telephone consultations, 140 (51%) consultations with the nurse in the surgery, 373 (66%) consultations with the doctor in the surgery, and 64 (65%) consultations with the nurse and the doctor in the surgery resulted in a prescription.

Repeat consultations. Repeat consultations were significantly higher after one week for nurse consultations in the surgery than for doctor consultations in the surgery (Table 4), 41/79 versus 67/183 (52% versus 37%) (95% confidence interval: 2% to 28%; P = 0.02).

Children under 10 years were least likely to consult with the same problem within one or four days (13% in one week, 11% in four weeks). Patients over 80 years were most likely to require a repeat consultation (24% in one week, 24% in four weeks).

#### Postal survey

The sample comprised 325 patients who had a telephone consultation with the practice nurse during the study period. A total of 284 people whose names and addresses could be identified with confidence were contacted, of whom 205 responded: 176 returned complete questionnaires, 16 responded 'can't remember telephone conversation', two had died, and 11 more were not known at that address. The effective sample was, thus, 271, with 192 responders: a response rate of 71%.

Most (154; 88%) patients were very or fairly satisfied with nurse telephone advice. Only 10 (6%) were fairly or very dissatisfied with telephone advice from the nurse. A total of 128 (73%) patients were fairly or very satisfied with the way in which the receptionist handled the call, although 102 (58%) were not satisfied with the speed of telephone answering by the receptionists.

During the study period, there was only one complaint. This was from a health care professional who would have preferred to speak to the doctor rather than the nurse.

**Table 2.** Same day appointments and non-urgent consultations between May 1995 and 31 July 1995 and between 1 August 1995 and 31 October 1995.

	Number of consultations			
Type of consultation	1.5.95 – 31.7.95	1.8.95 – 31.10.95		
Same-day consultations with the doctor (includes joint consultations with nurse	e) 1522	664		
Same day consultations with the nurse (includes telephone consultations)		599 <sup>6</sup>		
Non-urgent consultations with the doctor	6273	5796		
Non-urgent consultations with the nurse	1793	1415		
Total number of same-day and non-urgent consultations	s 9588	8474		

<sup>&</sup>lt;sup>a</sup> Unknown, but those that occurred are included in non-urgent consultations with the nurse. <sup>b</sup> Includes one consultation with a physiotherapist.

Table 3. Conditions managed by the nurse on the telephone or by the doctor and/or the nurse in the surgery (n = 1250).

Conditions seen	All telephone consultations	Nurse phone only	Nurse phone and surgery	Doctor surgery and nurse phone	Doctor surgery and nurse phone and surgery
	Frequncy (column %)	Frequency (Row %)	Frequency (Row %)	Frequency (Row %)	Frequency (Row %)
Upper respiratory Includes sore throat, tonsillitis, otitis media, ear infections, otitis externa, sinusitis, and miscellaneous	214 (17.1)	37 (17.3)	52 (24.3)	107 (50.0)	18 (8.4)
Lower respiratory Includes wheeze, asthma, upper respiratory tract infection, cough, chest infection, shortness of breath, and miscellaneous Dermatological Includes skin problems, allergy, eczema, infections, ill-defined	237 (19.0)	23 (9.7)	7 (3.0)	195 (82.3)	12 (5.0)
rashes, and miscellaneous	169 (13.5)	47 (27.8)	79 (46.7)	30 (17.8)	13 (7.7)
Gastrointestinal Includes diarrhoea and/or vomiting, abdominal pain, constipation, and miscellaneous	132 (10.6)	40 (30.3)	9 (6.8)	64 (48.5)	19 (14.4)
Musculoskeletal Includes low back pain, neck pain, other joint pain, and miscellaneous	109 (8.8)	38 (34.9)	19 (17.4)	41 (37.6)	11 (10.1)
Gynaecological Includes candida vulvo-vaginitis, contraception (including PC4), vaginal bleeding, and miscellaneous	76 (6.1)	27 (35.5)	32 (42.1)	13 (17.1)	4 (5.3)
Urological Includes urinary tract infection, dysuria,frequency, and miscellaneous	s 68 (5.4)	17 (25.0)	20 (29.4)	24 (35.3)	7 (10.3)
Counselling and advice Includes anxiety and treatment advice	9 51 (4.1)	30 (58.8)	9 (17.7)	10 (19.6)	2 (3.9)
Central nervous system Includes headache	39 (3.1)	16 (41.0)	4 (10.3)	18 (46.2)	1 (2.5)
Eye Includes conjunctivitis and other eye problems	37 (2.9)	11 (29.8)	8 (21.6)	16 (43.2)	2 (5.4)
nfectious diseases Includes acute infectious diseases such as chickenpox and measles.	34 (2.7)	4 (11.8)	13 (38.2)	14 (41.2)	3 (8.8)
Cardiovascular system Includes chest pain and miscellaneou	s 25 (2.0)	4 (16.0)	0 (0.0)	18 (72.0)	3 (12.0)
Miscellaneous	59 (4.7)	24 (40.7)	18 (30.5)	14 (23.7)	3 (5.1)
Total consultations	1250	318 (25.4)	270 (21.6)	564 (45.1)	98 (7.9)

#### **Discussion**

Approximately half of the patients who requested to see the doctor on the same day were managed by the nurse. Doctor workload fell by more than half compared with the previous three months. This outcome from telephone triage in acute illness has not been reported before.

Although this is a preliminary study, it includes the largest sample of acute same-day consultations managed by telephone triage in general practice. There was an overall reduction of 12% in the total workload over the two assessment periods. This may be attributable to the fact that the second period of data collection occurred during the 'holiday period'. The period of data collection was too short to reveal diurnal and seasonal variations in acute illness workload. These could substantially affect the

nature and distribution of the work managed by the nurse and the doctor. A more detailed study should include all same-day consultations and extend over a whole year.

The delay of 10 months in conducting the postal survey may affect the validity of the questionnaire findings, although 90% of respondents could still remember the consultation.

Marsh and Dawes<sup>10</sup> showed that a practice nurse could manage 86% of 'minor illnesses' without any doctor involvement. Their study, however, does not describe the work of the 'on-call' doctor who was also having same-day consultations. The receptionist offered a consultation with the nurse or with the 'on-call' doctor. In our study, a nurse directed patients who requested a same-day appointment to the doctor or nurse, or managed the problem on the telephone.

The majority of problems, such as rashes, skin infections, can-

Table 4. Repeat consultations for the same problem at one and four weeks.

Repeat consultations, with the same problem	Nurse telephone advice only Frequency (Group%) n = 325	Nurse surgery Frequency (Group%) n = 273	Doctor surgery Frequency (Group%) n = 565	Nurse and doctor surgery appointment Frequency (Group%) n = 99
Repeat consultations within one week	78 (24.0)	41 (15.0)	67 (11.9)	19 (19.2)
Repeat consultations after one week and up to four weeks	54 (16.6)	38 (13.9)	116 (20.5)	22 (22.2)
Total number of repeat consultations within four weeks	132 (40.6)	79 (28.9)	183 (32.4)	41 (41.4)

didal vulvo-vaginitis, and contraception problems, were managed by the nurse on the telephone or in the surgery. In contrast, acute respiratory problems, such as deteriorating asthma, shortness of breath and cough, were directed to the doctor.

#### Repeat consultations

Between 29% and 41% of our patients made repeat consultations within four weeks of their initial consultation. This contrasts with 21% of Marsh and Dawes' 10 patients who returned for a further consultation two weeks after seeing the nurse. The higher number of our patients returning with the same problem can be explained in several ways. First, our period of follow-up was greater. Secondly, the high figure for the practice nurse in the surgery compared with the doctor in the surgery after one week may reflect the fact that the nurse was cautious in bringing patients back for review. The patients who made a repeat appointment after receiving telephone advice include some who were directed to make routine surgery appointments; the high number does not necessarily mean that the patients' problems were dealt with inadequately.

#### Patient satisfaction with telephone advice

The majority of patients were satisfied with telephone advice. This is similar to other findings. <sup>14,15</sup> Comments from the patient interviews and those made on the postal questionnaire highlight several issues. Patients liked the fact that their problem was dealt with quickly and that they did not have to come to the surgery. They also found nursing advice helpful and reassuring. Patients were less happy with having to give the receptionist any indication of the nature of the problem and by being kept waiting on the telephone. A very small number would have preferred to speak to the doctor rather than the nurse.

Previous research has shown that these practical issues of receptionist involvement and telephone access are important influences in the acceptability of a telephone service to patients. <sup>16</sup> Our receptionists no longer ask patients to give them some idea of the nature of their problem before they are transferred to the nurse. An additional telephone number has been provided to improve access to the receptionist and the nurse. The nurse also has a separate telephone line to use to telephone patients at home or at work.

#### Prescriptions

A large proportion of patients seeing the nurse require prescriptions. Written guidelines have been developed for prescribing for common conditions. The nurse now prints the prescription by computer, and this is discussed with and then signed by the doctor. Practice nurse prescribing from a limited list would help to reduce this aspect of the work considerably.

#### Telephone triage and nurses

A great deal is known about general practitioners (GPs) and their attitudes towards telephone consulting. 14,17,18 Practice nurses are also willing to give telephone advice on minor illnesses and see it as a good use of their time. 19-21 Research into telephone triage by nurses has been pioneered in accident and emergency departments. 22 This research has recently been extended to acute illness in general practice using a computerized telephone advice system. 22 The essential process in triage is assessment to determine the urgency of a problem and to designate appropriate resources. Our nurse was able to do that.

Since the pilot scheme detailed here, telephone triage of same day appointments has expanded to cover the period 08.30 to 18.30 hours, with four experienced nurses staffing the service.

In summary, this preliminary study shows that a practice nurse, given training in triage, can reduce GP workload for acute illness by half. Patients appear to like this approach. More detailed research is needed to determine the advantages and disadvantages of triage for acute illness.

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